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Gifts to the Future: Design Reasoning, Design Research, and Critical Design Practitioners

Abstract Set in the context of a particular orthodoxy about the history of design research over the last 50 years, this opinion piece selectively surveys some of the significant findings from research into what expert design reasoning entails. Using the conceit of a pool of knowledge – which has come about from many different design research agendas, using multiple methods, and with differing foci of attention – it indicates some of what we know about design reasoning as a phenomenon by taking three "scoops" from the pool. These scoops, respectively characterize design reasoning as navigating the swamp; having negative capability; and being concerned with framing. This material is then used to contrast expert design reasoning with salient features of some popular characterizations of design thinking. The contribution concludes with some comments on designer formation, centered on the necessity of proficiency in *reflection* implied by any goal to nurture critical design practitioners.

1 Ian Hacking, "'Style' for Historians and Philosophers," *Studies in History and Philosophy of Science Part A* 23, no. 1 (1992): 3.

2 Horst W. J. Rittel, "The Reasoning of Designers" (working paper, International Congress on Planning and Design Theory in Boston, August 1987), 2, also available at http://www.cc.gatech.edu/fac/ellendo/rittel/rittel-reasoning.pdf.

3 Rittel, "Reasoning of Designers," 2.

4 Stefan Wiltschnig, Bo T. Christensen, and Linden J. Ball, "Collaborative Problem-Solution Co-Evolution in Creative Design," *Design Studies* 34, no. 5 (2013): 515–42.

5 Herbert A. Simon, *The Sciences of the Artificial* (Cambridge, Mass.: MIT Press, 1969).

6 Nigel Cross, ed., *Developments in Design Methodology* (New York: John Wiley & Sons, 1984).

Preamble

I avoid using the term *design thinking* myself. Much of what is termed design thinking isn't restricted to thinking, and quite a bit of it isn't restricted to designing. I prefer the term reasoning because, in the words of Ian Hacking, "reasoning is done in public as well as in private by thinking, also by talking, by arguing and by showing."[1] Horst Rittel spoke about *design reasoning* in 1987 as follows: "[I]magine a designer thinking aloud, arguing and negotiating with himself (or with others), trying to explain or justify what he is proposing, speculating about future consequences of his plan, deciding the appropriate course of action … the designer's reasoning is disorderly … due to the nature of design problems."[2] He goes on to say, "[F]rom the beginning, the designer has an idea of the 'whole' resolution of his problem which changes with increasing understanding of the problem, and the image of its resolution develops from blurry to sharp and back again, frequently being revised, altered, detailed and modified."[3]

In design research, we have become accustomed to speak of the co-evolution of problem and solution;[4] and use of the terms "problem," "solution," and "search space" still pervades much of design research reporting, even from those researchers who find restrictive Herbert Simon's characterization of a science of design.[5] Language enables and constrains our perceptions; thus it is interesting to speculate on what the differences in our apprehension and interpretation of design activity might be if our notions about a developing design were more often conceived in terms of a process of successive blurring and sharpening of an image, and if we design researchers had become more accustomed to using more camera/lens inspired analogies like panning and zooming.

I am going to start with a bit of design research history, *a* history, just to set some context, and remind us of how far we have come in understanding design reasoning and the rich pool of knowledge that has been collected about designing as a phenomenon. I'm then going to poke around in this material and scoop out a selection of things we've learned about design reasoning over the last 50 or so years, then we can drop them back in the pool and let them settle on the bottom again – or perhaps some of you will want to take another look, or even a closer look, and turn them over and see if any of them are useful for your own purposes. I've had a difficult job deciding what to fish up, so I'm netting a few things together and taking three scoops. *If* I had my own manifesto for what comprises *design thinking*, I guess these components would feature in it. So the first Gifts to the Future of my title refer to these *findings from design research*.

After scooping from the pool, I'll finally, briefly, indicate what I think are one or two general principles for educational interventions that can encourage the development of *design reasoning* among novice designers and support them in developing a critical awareness of, and stance towards, their practice, so that they can move beyond inculcation in a discipline to contribute to its formation and reformulation. It is these resulting *critical practitioners* that are the second set of Gifts to the Future, the designers who will address the challenges we are facing and who will have a formative influence on all our futures.

A Bit of a Design Research History

A commonly held Western orthodoxy holds that research into design per se (design, designing, design processes, design expertise, design thinking, and so on) dates back about 50–60 years. In a landmark collection of papers, *Developments in Design Methodology*[6] published as a reader just under halfway through this period, its editor, Nigel Cross, organized the selected contributions as a movement